

IN THE CLAIMS

1-23. (cancelled)

24. (original) An apparatus for providing enhanced slice prediction comprising:

an inner decoder that inner decodes a received signal to provide an inner decoded output, wherein the inner decoder produces $n/2$ possible decoding states based upon the received signal, wherein the received signal contains data having n levels, and wherein $n > 2$;

an outer decoder that outer decodes the inner decoded output; and,

an enhanced slice predictor that chooses at least one but fewer than the $n/2$ of the $n/2$ possible decoding states based upon an output of the outer decoder and that provides the chosen state or states as the enhanced slice prediction.

25. (original) The apparatus of claim 24 wherein n is eight, wherein the enhanced slice predictor chooses two of the four possible states based upon the output of the outer decoder, and wherein the enhanced slice predictor provides the chosen two states as the enhanced slice prediction.

26. (original) The apparatus of claim 24 wherein n is eight, wherein the enhanced slice predictor chooses two and only two of the four possible states based upon the output of the outer decoder, and wherein the enhanced slice predictor provides the chosen two and only two states as the enhanced slice prediction.

27. (original) The apparatus of claim 24 wherein n is eight, wherein the enhanced slice predictor chooses one of the four possible states based upon the output of the outer decoder, and wherein the enhanced slice predictor provides the chosen one state as the enhanced slice prediction.

28. (original) The apparatus of claim 24 wherein n is eight, wherein the enhanced slice predictor chooses one and only one of the four possible states based upon the output of the outer decoder, and wherein the enhanced slice predictor provides the chosen one and only one state as the enhanced slice prediction.

29. (original) The apparatus of claim 24 further comprising a delay that delays operation of the enhanced slice predictor based upon a processing time of the inner decoder.

30. (original) The apparatus of claim 24 wherein the inner decoder is an ATSC decoder, and wherein the outer decoder is an RVSB decoder.

31. (original) The apparatus of claim 24 further comprising an equalizer coupled to receive the enhanced slice prediction as feedback.

32. (original) The apparatus of claim 24 further comprising a phase tracker coupled to receive the enhanced slice prediction as feedback.

33. (original) An apparatus for providing enhanced slice prediction comprising:

an inner decoder that inner decodes a received signal containing first and second data to provide inner decoded first and second data;

an outer decoder that outer decodes only the second data; and,

an enhanced slice predictor that provides a prediction output based upon the first data when the second data is not available and based upon the outer decoded second data when the second data is available.

34. (currently amended) The apparatus of claim 33 wherein the each of the first and second data are 8 level symbols, wherein the 8 level symbols of the first data represent a number of bits that is different than a number of bits represented by the 8 level symbols of the second data ~~having different bit rates.~~

35. (original) The apparatus of claim 33 wherein the enhanced slice predictor implements a Viterbi algorithm.

36. (original) The apparatus of claim 33 wherein the prediction output is a single symbol.

37. (original) The apparatus of claim 33 further comprising a delay that delays operation of the enhanced slice predictor.

38. (original) The apparatus of claim 33 wherein the first data are non-RVSB symbols, and wherein the second data are RVSB symbols.

39. (original) The apparatus of claim 33 wherein the inner decoder is an ATSC decoder, and wherein the outer decoder is an RVSB decoder.

40. (original) The apparatus of claim 33 further comprising an equalizer coupled to receive the enhanced slice prediction as feedback.

41. (original) The apparatus of claim 33 further comprising a phase tracker coupled to receive the enhanced slice prediction as feedback.

42. (original) The apparatus of claim 33 wherein the enhanced slice predictor bases its slice prediction upon a known training signal when a transmitted training signal is contained in a received signal.

43. (new) A method for providing enhanced slice prediction comprising:

receiving an input containing first and second data, wherein each data element of the first data represents a number of bits that is greater than a number of bits represented by each data element of the second data, and wherein the first and second data in the received input are defined by the same n level constellation;

decoding the input with a first decoder to recover both the first and second data;

decoding only the second data with a second decoder; and,

providing enhanced slice prediction based on the decoding of the second decoder.

44. (new) The method of claim 43 wherein the providing of enhanced slice prediction comprises:

producing an output confined to at least one but fewer than $n/2$ of the n constellation levels, wherein $n > 2$; and,

providing the output as the enhanced slice prediction.

45. (new) The method of claim 44 wherein the first decoder has n states, wherein the producing of an output comprises choosing $n/4$ states out of $n/2$ states of the n states of the first decoder, and wherein the providing of the output comprises providing the $n/4$ states as the enhanced slice prediction.

46. (new) The method of claim 44 wherein n is eight, wherein the first decoder has eight states, wherein the producing of an output comprises choosing only two states out of four states of the eight states of the first decoder, and wherein the providing of the output comprises providing the two states as the enhanced slice prediction.

47. (new) The method of claim 44 wherein n is eight, wherein the first decoder has eight states, wherein the producing of an output comprises choosing only one state out of four states of the eight states of the first decoder, and wherein the providing of the output comprises providing the one state as the enhanced slice prediction.

48. (new) The method of claim 43 wherein the providing of enhanced slice prediction comprises providing the enhanced slice prediction based on the input when the second data is not available.

49. (new) The method of claim 48 wherein the providing of enhanced slice prediction comprises providing only one state as the enhanced slice prediction.

50. (new) The method of claim 48 further comprising selecting between basing the enhanced slice prediction on the input and basing the enhanced slice prediction on the decoding of the second decoder in response to a received map.

51. (new) The method of claim 48 wherein the data elements of the first data comprise eight level non-RVSB symbols, and wherein the data elements of the second data comprise eight level RVSB symbols.

52. (new) The method of claim 48 wherein the providing of enhanced slice prediction comprises providing the enhanced slice prediction based upon a known training signal when a transmitted training signal is contained in the input.

53. (new) The method of claim 43 wherein the providing of enhanced slice prediction comprises decoding the input with a third decoder when the decoded second data is not available.

54. (new) The method of claim 53 wherein the decoding of the input with a third decoder comprises implementing a Viterbi algorithm.

55. (new) The method of claim 53 wherein the providing of enhanced slice prediction comprises providing only one state of the third decoder as the enhanced slice prediction.

56. (new) The method of claim 53 further comprising selecting between decoding the input with the third decoder and basing the enhanced slice prediction on the decoding of the second data in response to a received map.

57. (new) The method of claim 53 wherein the data elements of the first data comprise eight level non-RVSB symbols, and wherein the data elements of the second data comprise eight level RVSB symbols.

58. (new) The method of claim 53 wherein the providing of enhanced slice prediction comprises providing the enhanced slice prediction based upon a known training signal when a transmitted training signal is contained in the input.

59. (new) The method of claim 43 further comprising providing the enhanced slice prediction as feedback to an equalizer.

60. (new) The method of claim 43 further comprising providing the enhanced slice prediction as feedback to a phase tracker.

61. (new) The method of claim 43 wherein the providing of enhanced slice prediction comprises providing the enhanced slice prediction based upon a known training signal when a transmitted training signal is contained in the input.

62. (new) The method of claim 43 wherein each of the data elements of the first data comprises a symbol having one of the n constellation levels, wherein each of the data elements of the second data comprises a symbol having one of the n constellation levels, and wherein $n > 2$.

63. (new) The method of claim 43 wherein $n = 8$.

64. (new) The method of claim 43 wherein the providing of enhanced slice prediction comprises providing the enhanced slice prediction based on an output of the first decoder input when the second data is not available.

65. (new) The apparatus of claim 33 wherein the inner decoder implements a Viterbi algorithm that provides a reduced set of decoding states to the enhanced slice predictor.

66. (new) The apparatus of claim 65 wherein the enhanced slice predictor is responsive to the reduced set of decoding states from the inner decoder and an output from the outer decoder to provide the prediction output.